HANDBOOK OF PHONOLOGICAL DATA
FROM A SAMPLE OF THE WORLD'S LANGUAGES

A Report of the Stanford Phonology Archive

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185 Norwegian

185 01 p-aspirated[01,04]
[p][60]
[p-unreleased][61]
[p-nasal-release][62]
[p-lateral-release][63]

185 02 b
[b-unreleased][61]
[b-nasal-release][62]
[b-lateral-release][63]

185 03 t-dental-aspirated[03,04]
[t-dental][60]
[t-dental-unreleased][61]
[t][05,64]
[t-dental-nasal-release][62]
[t-dental-lateral-release][63]

185 04 d-dental[03]
[d-dental-unreleased][61]
[d][05,65]
[d-dental-nasal-release][62]
[d-dental-lateral-release][63]

185 05 t-retroflex-aspirated[04,06]
[t-retroflex][60]
[t-retroflex-unreleased][61]
[t-retroflex-nasal-release][62]
[t-retroflex-lateral-release][63]

185 06 d-retroflex[06]
[d-retroflex-unreleased][61]
[d-retroflex-nasal-release][62]
[d-retroflex-lateral-release][63]

185 07 k-aspirated[04,07]
[k][60]
[k-unreleased][61]

185 08 g[07]
[g-unreleased][61]

185 09 v-approximant[08]

185 10 f[10]

185 11 s[11,12,30]

185 12 s-hacek[11,12,13,30]

185 13 c-fricative[10,31]

185 Norwegian

14 m-voiceless[32]
(limited)

15 m
[m-labiodental][67]
(neutral,allo)
*/n-dental/

17 n-dental[03]
*[m-labiodental]
[n][05,68]
[n-dental-syllabic][37,71]

18 n-retroflex[06]
[n-retroflex-syllabic][37,71]

19 eng[07]

20 l-dental[18,33]
[l][05,68]
[r-flap-retroflex][19,69]
(free)

21 l-retroflex[06,33]

22 r-flap[05,21,22]

23 glottal stop[34]
(limited)

24 h[23]

25 l-dental-syllabic[37]
(restricted)

26 l-retroflex-syllabic[37]
(restricted)

27 r-syllabic[37]
(restricted)

51 iota[25]

52 i-long
[i/schwa-glide]
(free)

53 upsilon-trema[27,35,40]

54 u-trema-long[27]

185 Norwegian

[u-trema/schwa-glide]
(free)

55 e-mid

56 e-long
[e/schwa-glide]
(free)

57 o-open-trema[42,43]

58 o-mid-trema-long[42]
[o-mid-trema/schwa-glide]
(free)

59 ash

60 ash-long

61 u-dot[45]

62 u-dot-long[45]

63 schwa[36,48]

64 a[49]

65 a-long[50]

66 u[51]

67 u-long
[u/schwa-glide]
(free)

68 omega[51,53]

69 o-mid-long
[o-mid/schwa-glide]
(free)

70 yod[55]

80 low-rising
[high]
(neutral,free)

81 high-falling-rising

185 $a Norwegian $b Standard Eastern $d Germanic $e Norway $f 4.3 million $g Merritt Ruhlen $g Marilyn Vihman (review)

185 $a Vanvik, Arne $b 1972 $c A Phonetic-Phonemic Analysis of Standard Eastern Norwegian $d Norwegian Journal of Linguistics 26:2.119-164 and 27:2.101-139

185 $a **GLIDES** $A The "approximant" /v-approximant/ and the "glide" /yod/ are both ambiguous phones: they are in fact glides with some friction in emphatic speech. We have classed /v-approximant/ as a consonant because of its place of articulation, /yod/ as a glide because of its major role as second member of a diphthong. Vanvik includes five diphthongs, /ash.i/, /a.i/, /omega.u-trema/, /o-open-trema.u-trema/, and /ash.u-dot/. He notes that all of these may be eliminated by interpreting the last element as a glide, with /u-dot/ being replaced by /v-approximant/. We have adopted this interpretation here. [MV]

185 $a **INTONATION** $A Vanvik distinguishes two intonations: (1) falling, for statements, wh-questions, commands, and exclamations, and (2) rising intonation, for unconcluded phrases, "normal" questions, uncertain statements, encouragement.

185 $a **LONG CONSONANTS (NON-DISTINCTIVE)** $A "Differences in the length of consonant sounds are not considered to be phonemic. These differences follow more or less automatically from the length of the preceding vowel phoneme, i.e. a consonant sound is usually (but not always) a little longer after a short vowel phoneme than after a long vowel phoneme. These differences in the length of consonant sounds are auditorily insignificant in comparison with differences in the length of vowel sounds." (p.122)

185 $a **RETROFLEX CONSONANTS** $A "As a general rule the retroflex consonants correspond to the orthographic spellings 'r.t, r.d, r.n, r.l.' Generally speaking, the words can be pronounced in two ways: either with retroflex sounds or with the sequences [r.t, r.d, r.n, r.l]. The retroflex sounds are the most commonly used. Generally speaking, the pronunciation with a consonant sequence belongs to a (very) high style." (p.147)

185 $a **STRESS** $A Words generally have a single stress. In words of Germanic origin this falls on the first syllable, except for certain unstressed prefixes. Loans may stress other syllables. Stress "can be signalled by tonal movement, extra length, extra loudness, strong aspiration of voiceless plosives..., and occasionally by glottal stop in front of a syllable initial vowel." (p.108f)

185 $a **SYLLABLE** $A (C)(C)(C)V(V)(C)(C)(C)(C) $A CVCCCC is the only syllable type listed with four final C. Stressed syllables cannot end in a short V. The source does not give an inventory of clusters. (II, p.106) $A diphthongs: /ash/ + /iota, u-dot/; /o-open-trema/ + /upsilon-trema/; also /a/ + /iota/ and /omega/ + /upsilon-trema/ "almost exclusively in loan-word."

185 $a **TONE** $A domain of tone: polysyllabic word $A Words with one or more syllables following the stressed syllable have one of the two tones. Monosyllables and end-stressed polysyllables lack tonal contrasts. For /low-rising/ the stressed syllable is [low] and the following syllables rise progressively to [mid]. For /high-falling-rising/ the stressed syllable is [high-falling] (or just [high] with short syllables); [low] occurs at the end of the stressed syllable in disyllabic words, and on the post-tonic syllable in longer words. The syllable after the low point is roughly [mid], as indicated in the diagrams. Vanvik notes the possibility of reducing the system to /high/ vs. /low/, since the contrast occurs chiefly on the stressed syllable. Stressed syllables without tone are phonetically [high]. (This is identified as a neutral tone in the Archive.) (p.106ff)

185 $a **VOWELS** $A "There is a tendency towards a more central position for the short member of a pair" of vowels related as short/long. (p.132)

185 01 $A /p-aspirated/ "is slightly aspirated before /t-dental-aspirated/ in the same syllable." (p.135)

185 03 $A For the dental stops and /n-dental/, "the tip of the tongue usually touches the upper part of top teeth while at the same time the blade touches the fore part of the teeth-ridge." (p.136)

185 04 $A The aspirated stops are "relatively strongly aspirated at the beginning of a stressed syllable or immediately before a pause. [They have] somewhat weaker aspiration in unstressed syllables." (p.136)

185 05 $A [t, d, n, l, r-flap] are "post-alveolar." (p.137-143)

185 06 $A For the retroflex stops and /n-retroflex, l-retroflex/, "the blade of the tongue is curled upwards and touches the roof of the mouth at about the division between the teeth-ridge and the hard palate." (p.137)

185 07 $A For the velar stops and /eng/, "the back of the tongue touches the fore part of the soft palate." (p.138)

185 08 $A "/v/ is the labiodental frictionless continuant.... It is sometimes slightly fricative, particularly before a pause, and in emphatic speech." (p.145)

185 10 $A For /f/ and /c-fricative/, "the tongue has a flat shape." (p.143)

185 11 $A For /s, s-hacek/ "the tongue is grooved." (p.143)

185 12 $A /s, s-hacek/ are described as "strident." (p.143)

185 13 $A For /s-hacek/ "the lips are somewhat protruded." (p.143)

185 18 $A /l-dental/ is described as "dental or alveolar.... The place of articulation is usually a little behind that of /t-dental/, /d-dental/, and /n-dental/." (p.141)

185 19 $A For [r-flap-retroflex] "the tip and blade of the tongue are curled backwards. As the tongue

is brought rapidly forward and down behind the lower teeth, the under side of the blade touches the roof of the mouth at about the division between the teeth-ridge and hard palate." (p.142)

185 21 $A /r-flap/ "may...be...voiceless...in utterance-final position." (p.143)

185 22 $A "It seems that a flap is by far the most common realization [of /r-flap/]. Sometimes there is no occlusion, particularly in utterance-final position." (p.143)

185 23 $A /h/ is "sometimes palatal (in connexion with front vowels) and sometimes velar (in connexion with back vowels). It is usually voiceless, but can be voiced between voiced sounds." (p.145)

185 25 $A /iota/ is "a little retracted." (p.124)

185 27 $A /upsilon-trema, u-trema-long/ are "almost close." They are "slightly opener and slightly more retracted than /i-long/." (p.128)

185 30 $A "There is stylistic variation between /s-hacek/ and /s/ in the initial sequences [/s.p, s.t, s.k, s.m, s.m, s.v/]. The pronunciation with /s-hacek/ is more 'vulgar' and/or more emphatic." (p.144)

185 31 $A "/c-fricative/ is usually the last phoneme to come in the development of a child's speech. It is usually developed at about the age of eight. Till then /s-hacek/ is normally used instead of /c-fricative/." (p.144)

185 32 $A /m-voiceless/ "occurs in...interjections." (p.139)

185 33 $A "With younger people there is hardly any difference in pronunciation between /l-dental/ and /l-retroflex/." It may seem to be a question of time only "before complete merger takes place." (p.142f) "In the last few decades /l-dental/ seems to have been more and more superseded by /l-retroflex/ in the Oslo area. Oslo speakers of the younger generation mostly use a slightly retroflex lateral. This lateral...is hardly ever heard after /a-long/, /a/, and /omega/ in the same syllable." (p.141)

185 34 $A "The /glottal stop/ is not a phoneme. The sound may occur at the beginning of a stressed syllable immediately before a vowel (or diphthong). It is chiefly used in emphatic speech, for instance, in commands." (p.139) More rarely it can occur in postvocalic position, e.g. in variants of "yes," "now." (p.139)

185 35 $A "The universal rareness of the Norwegian /upsilon-trema/-quality seems to be reflected in the phonetic-phonemic development of Norwegian children. In my experience the /upsilon-trema/-phonemes are the last vowel phonemes to develop in childhood." (p.133)

185 36 $A /schwa/ "occurs only in unstresed syllables." (p.129) This is the only vowel which has no long partner. (p.132)

185 37 $A The syllabic sonorants occur only in unstressed position, the nasals and /l-dental-syllabic/ after homorganic consonants, /n-dental-syllabic, l-dental-syllabic/ also after /s, s-hacek/ and the liquids after long vowels. /r-syllabic/ varies with /schwa.r-flap/. (No articulatory description given for /r-syllabic/.) In spite of the distributional limitations there is contrast between syllabic and non-syllabic liquids. (II, p.102ff)

185 40 $A "The lips are protruded [for /upsilon-trema, u-trema-long/], and the opening between them is rather large." (p.128)

185 42 $A /o-open-trema, o-mid-trema-long/ are "retracted front." (p.129)

185 43 $A /o-open-trema/ is "slightly rounded." (p.129)

185 45 $A /u-dot, u-dot-long/ are described as "advanced central." They have almost the same lip position as /u/ and /u-long/. (p.127)

185 48 $A "In the Oslo area [/schwa/] is sometimes rather front and close before a consonant." (p.129)

185 49 $A /a/ is "between front and back.... It is often a little more advanced than /a-long/. With some speakers the opposite tendency can be found." (p.126)

185 50 $A /a-long/ is often closer to Cardinal [alpha-unrounded] than to Cardinal [a-front]." (p.125)

185 51 $A /u, omega/ are described as "a little advanced." (p.127, 126)

185 53 $A /omega/ has "rather close lip-rounding." (p.126)

185 55 $A /yod/ "is often fricative in energetic speech, particularly in intervocalic position." (p.145)

185 60 $A For the aspirated stops "in syllable-final position [there is] little or no aspiration

immediately before another phoneme. [There is] practically no aspiration...between /s/ and another phoneme in the same syllable." (p.135)

185 61 $A In a sequence of two identical stops, the first is unreleased. (p.136ff)

185 62 $A The non-velar stops have nasal-release when immediately followed by a homorganic nasal. (p.136ff)

185 63 $A The bilabial and dental stops are released laterally when immediately followed by /l-dental/. The retroflex stops have lateral release when followed by /l-retroflex/. (p.136ff)

185 64 $A /t-dental-aspirated/ is realized as [t] "immediately before or after /s-hacek/." (p.136)

185 65 $A /d-dental/ is realized as [d] "after /s-hacek/." (p.137)

185 67 $A /m/ and /n-dental/ are realized as [m-labiodental] before /f/ and /v/. (p.139, 140)

185 68 $A /n-dental, l-dental/ are realized as [n, l] "immediately after /s-hacek/." (p.140, 141)

185 69 $A "In Standard Eastern Norwegian its [[r-flap-retroflex]] frequency of occurrence as an allophone of /l-dental/ seems to be on the increase, particularly perhaps after another consonant...[and] intervocalically.... But it is by no means obligatory to use it, and there are people who hardly ever do so." (p.142)

185 71 $A /n-dental, n-retroflex/ become syllabic word finally after a consonant. (The other nasals do not occur here apparently.) (II, p.102f)